DECISION RECORD

Environmental Assessment No. NM-060-99-155
Section 3 Grazing Authorization
Allotment 64059

It is my decision to issue a ten-year permit to Mr. Clint Lynch to graze cattle on Allotment 64059 based on the Proposed Action in Environmental Assessment NM-060-99-155. Permitted use will be for nine animal units yearlong at 100 percent federal range, which corresponds to 108 animal unit months (AUMs).

In accordance with 43 CFR §4160, a period of 15 days is allowed after the receipt of this proposed decision to protest it to the Authorized Officer in person or in writing. Points of protest should be specific. In the absence of a protest, this proposed decision will become the final decision of the Authorized Officer without further notice.

In accordance with 43 CFR §4.470, a period of 30 days is allowed following the date of the final decision to file an appeal and petition for a stay of the decision for the purpose of a hearing before an Administrative Law Judge. The specific points being appealed should be clearly and concisely stated. Appeals can be filed at the following address:

Field Office Manager
Bureau of Land Management
Roswell Field Office
2909 West Second Street
Roswell, New Mexico 88201

signed by T. R. Kreager 6/26/01
Assistant Field Office Manager - Resources Date

ENVIRONMENTAL ASSESSMENT
for
Section 3
GRAZING AUTHORIZATION
on
ALLOTMENT 64059

Township 10 South, Range 25 East
Sections 27, 29, 32, 33, 34 (portions)

EA-NM-060-99-155

March 2000

U.S. Department of the Interior
Bureau of Land Management
Roswell Field Office
Roswell, New Mexico

I. BACKGROUND

A. Introduction

When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) has historically relied on a land use plan and environmental impact statement to comply with the National Environmental Policy Act (NEPA). A recent decision by the Interior Board of Land Appeals, however, affirmed that the BLM must conduct a site-specific NEPA analysis before issuing a permit or lease to authorize livestock grazing. This environmental assessment fulfills the NEPA requirement by providing the necessary site-specific analysis of the effects of issuing a new grazing permit on Allotment 64059.

B. Purpose And Need For The Proposed Action

The purpose of issuing a new grazing permitwould be to authorize livestock grazing on public range on Allotment 64059. The permitwould be needed to specifythe types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3-1, and 4130.3-2.

C. Conformance With Land Use Planning

The proposed action conforms with the Roswell Approved Resource Management Plan (RMP) and Record of Decision (BLM 1997) as required by 43 CFR 1610.5-3.

D. Relationships to Statutes, Regulations, or Other Plans

The proposed action and alternatives are consistent with the Federal Land Policy and ManagementActof 1976 (43 U.S.C. 1700 etseq.); the Taylor Grazing Act of 1934 (43 U.S.C. 315 et seq.), as amended; the Clean Water Act (33 U.S.C. 1251 et seq.), as amended; the Endangered Species Act (16 U.S.C. 1535 et seq.), as amended; the Public Rangelands Improvement Act of 1978(43 U.S.C. 1901 etseq.); Executive Order 13112, InvasiveWeeds; Executive Order 11988, Flood plain Management; and Executive Order 11990, Protection of Wetlands.

II. PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action - Current Livestock Management

The proposed action is to issue Mr. Clint Lynch a term permit to graze cattle on Allotment 64059. Permitted use would be for nine animal units (AUs), year-long at 100 percent federal range, which corresponds to 108 animal unit months (AUMs).1 The BLM does not control overall livestock numbers on the allotment.

Underthe ProposedAction, managementof the allotmentwould continue undertheterms and conditions of the current permit. No changes to livestock management or to existing range improvements would be required.

B. No Grazing Permit Alternative

Under this alternative a new grazing permit would not be issued for Allotment 64059. No grazing would

be authorized on federal land on this allotment.

III. **AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS**

A. General Setting

Allotment 64059 is in Chaves County, five miles east of Roswell. It lies in the 100-year floodplain of the Pecos River, which flows north-to-south through a broad alluvial valley. Elevations range from 3450 feet at the downstream end of the river, to 3500 feet on the uplands at the north end of the allotment. The river roughly follows the east boundary of the allotment. Bitter Lake National Wildlife Refuge (BLNWR) borders the allotment to the north, and U.S. Highway 380 borders it to the south. Residential development is occurring on private lands to the west, and irrigated agriculture is common to the west and south.

Theclimate is semi-arid with normal monthly temperatures rangingfrom 20OF in Januaryto 950F in July at BLNWR (Owenby and Ezell 1992). Observed minimum and maximum temperatures were -220F and 1130F, respectively. Average annual precipitation is 11.6 inches, primarily as rainfall. Annual precipitation has ranged f rom 3.11 inches to 21.08 inches (Kunkel 1984).

[1] For a cattle operation, an animal unit (AU) is defined as one cow with a nursing calf or its equivalent. An animal unit month (AUM) is the amount of forage needed to sustain that cow and calf for one month.

Allotment 64059 is considered a riparian allotment because of its 1.2 miles of riparian habitat along the Pecos River. Riparian (and wetland) areas are directly influenced by permanent free water, whether at the surface or in the subsurface. Compared to adjacent upland sites, the riparian area has a greater amount and diversity of vegetation. The diversity of plant species and availability of water makes riparian areas prime wildlife habitat.

Though the riparian areas along the river have tremendous resource values, they have been altered by the regulation of river flows by upstream reservoirs, especially Sumner Lake. Reservoir releases are controlled by the Bureau of Reclamation, and are largely driven by irrigation demands. Management of allotment riparian areas is within the constraints imposed by the regulation of river flows.

Public lands on the allotment provide benefits forother users, as well as the permittee. These uses include recreation (e.g., hunting and wildlife viewing), and natural gas development.

B. Affected Resources

The following resources orvalues are not present orwould not be affected bythe authorization of livestock grazing on Allotment 64059: Areas of Critical Environmental Concern, Cultural Resources, Native American Religious Concerns, Prime or Unique Farmland, Minority/Low I ncome Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness. Affected resources and the impacts resulting from livestock grazing are described below.

1. Livestock Management

Affected Environment

Mr. Lynch currently runs a cow/calf operation on Allotment 64059 with a permitted use of nine AUs year-long at 100 percent federal range. Nine AUs correspond to 108 AUMs. TheBLM does not control livestock numbers on Allotment 64059. Instead, the BLM bills Mr. Lynch for the amount of forage available on the public rangeland within the allotment. He runs approximately 100 head of livestock in a single herd, though he has reduced numbers to as low as 60 when forage is sparse. The allotment covers approximately 1135 acres, including 400 acres of BLM land and 735 acres of private land.

Allotment64059 is north of U.S. 380, but isoperated concurrently with private lands south of the highwaythatare outside of the allotment, and one pasture southwest of the allotmentthat lies on the north side of the highway. The north and south sides are divided into four pastures each, and livestock are rotated among the pastures. The three allotment pastures include a river pasture that allows effective management of the river riparian area. Mr.Lynchintends to use the river pasture during brief periods before the start of the growing season, but has been unable to do so due to damage to water gaps from motorcyclists using the river.

Livestock water at the Rio Hondo south and north of the highway. Between Roswell and the river is an area of saltwater intrusion, so water wells and the marsh area on the north side of the allotment are too saline for livestock use.

Theallotmentwas placed inthe"C" category(i.e., a "custodial" allotment) upon completion of the Roswell ResourceArea Management Framework Plan Amend ment/Environmental Impact Statement (BLM 1984). The BLM proposed no changes in management or authorized use.

Environmental Impacts

Under the Proposed Action, current livestock grazing management would continue on the allotment. Because grazing would be sustainable undercurrent management, no impacts to the livestock operation would occur.

Underthe No-Grazing Alternative, no livestock grazing would be authorized on BLM lands. If livestock grazing were to continue on adjacent privately owned lands, the BLM land would have to be fenced apart to prevent trespass on public lands (43 CFR 4140.1 (b)(1)). The expense of fencing would be borne by the private landowner.

Cumulative impacts of the g razing and no grazing alternatives were analyzed in Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994) and in the Roswell Resource Area Draft RMPIEIS (BLM 1994). The no livestock grazing alternative was not selected in either document.

2. Vegetation

Affected Environment

Allotment 64059 is in the Drainages, Draws, and Canyons community type. General objectives for the community are described in the Roswell Approved RMP and Record of Decision (BLM 1997), and the Roswell Draft RMP/EIS (BLM 1994). Allotment 64059 is described as a riparian allotment because it includes a reach of the Pecos River, and because a wetland area is found at the north end. Except for

30 acres in Section 29, the entire allotment is within the 1 00-year floodplain

The marshy area on the north part of the allotment is represented by common wetland species, such as sedges, pickleweed, and saltgrass. The riparian area along the river consists mainly of a narrow strip of sedges. Beyond that is a wide band of vegetation dominated by saitcedar, but also represented are seepwillow, alkali sacaton, tobosa, inland saltgrass, and annual forbs. On the south end of the allotment this band of vegetation is influenced by manmade levees where the river has been straightened as it approaches the U.S. 380 bridge. Black willow, a desirable species, grows on the south side of the highway
just off of the allotment. It was not found on Allotment 64059, but is considered a viable species, especially if saltcedar were treated.

The flat area beyond the levee on the west side of the river is vegetated mainly with alkali sacaton. Scattered fourwing saltbush, saltcedar, and mesquite are also found, and sandy areas have stick leaf, goldenrod, curlycup gurnweed, ragweed, and annual forbs. There is a significant percentage of bare ground, but this is probably due to the saline soils.

Environmental Impacts

Under the Proposed Action, vegetation would continue to be grazed and trampled by livestock, primarily those species preferred as forage. The current level of use, however, appears to be sustainable. Monitoring conducted in January 1991 and a site visit in July 1999 indicated that enough vegetative ground coverwas presentto provide forage, and still prevent excessive wind and water erosion.

Underthe No-Grazing Alternative, vegetation condition might improve somewhat. Grasses would increase initially, but plant vigor could decline from the lack of vegetation removal, making ground species rank.

3. Invasive, Nonnative Species

Affected Environment

Allotment 64059 is in an area that is susceptible to the spread of invasive weeds because it borders the Pecos River and U.S. 380. These linear features are conducive to the proliferation of invasive species. Weeds can be defined as ". . any plant that interferes with the management objectives for a particular site, and an invasive weed is one that is not native to a particular ecosystem" (Lee 1999). Once established, invasive weeds have a negative impact on the environment and the economy.

In accordance with the 1998 New Mexico Noxious Weed ManagementAct, the New Mexico Department of Agriculture assembled a Noxious Weed List forthe state. Russian knapweed, a Class B species', is found on both sides of the U.S. 380 right-of way, along Red Bridge road, and on BLNWR. This member of the sunflower family is a creeping perennial that forms dense colonies as a result of buds from its spreading roots. It can be identified by its small lavender flowers (half inch in diameter), smooth, papery floral bracts, and deep black roots. Russian knapweed can cause chewing disease in horses (Lee 1999). In addition, saltcedar is a Class C species[3] found in dense stands on the allotment. It is discussed in the Vegetation section.

'Class B weeds are nonnative species that are presently limited to portions of the state. They are designated for control in regions where they are not yet widespread. Preventing infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level with containment as the primary goal.

' Class C weeds are also nonnative weeds found in New Mexico. Many of these species are widespread in the state. Long-term programs of suppression and management are a local option, depending on local threats and the feasibility of management.

Environmental Impacts

As with any activity, ranch operations could contribute to the spread of invasive weeds by carrying seed on vehicles, livestock, or horses, and disturbing sites that can be colonized by invasive species. The main cause forthe spread of the weeds, however, is more likely vehicle traffic on the highway since the population of Russian knapweed is found from Comanche Hill to the east, to the town of Hondo to the west. Off-highway vehicle users turning off the right-ofway onto the river could also pose a significant risk of spread.

Choosing the No-Grazing Alternative would do little to red uce the risk of spreading invasive weeds. Livestock grazing would probably continue on the private lands within the allotment, so permitting Mr. Lynch for nine additional animals would make little difference toward controlling weeds.

4. Soils

Affected Environment

The Soil Survey of Chaves County, New Mexico, Southem Part (USDA Soil Conservation Service 1980) was used to describe and analyze the impacts to soils. The most extensive soils on the allotment are the Holloman-Gypsum land complex, Pecos silty clay loam, and Balmorhea loam. Other important soils are the Vinton-Glendale association (VG), which is adjacent to the river, and Glendale fine sandy loam, which forms a narrow strip between the uplands and the VG soil.

Though the entire allotment is within the 1 00-year floodplain, it is rarely flooded. The only exception is the VG soil, which is found along the river. The soils all formed in various types of alluvium. They are generally deep and well-drained, and textures of the surface layer ranges from loamy fine sand to silty clay loam. The VG soil has sandy areas that are highly susceptible to wind erosion, but elsewhere on the allotment the hazard of wind or water erosion is slight to moderate.

Environmental Impacts

Under the Proposed Action, livestockwould remove some of the cover of standing vegetation and litter, and compactthe soil bytrampling. If livestock managementwere inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The impacts of removing vegetation and trampling would be greatest in areas of concentrated livestock use, such as trails, waters, feeders, and shade. Some sandy soils on the allotment are highly vulnerable to wind erosion. Removal of the vegetative cover also increases the exposure of soils to the erosive force of wind.

Though livestock impacts are possible, monitoring data from 1991 indicate that the current level of grazing is sustainable and should maintain an adequate vegetative coverto protect soils from erosion. Periodic rangeland monitoring would help ensure an adequate vegetative cover to protect soils from wind or water erosion by indicating when and where changes to livestock management are needed in the future.

Under the No-Grazing Alternative, any risk of overgrazing would be eliminated. However, removing grazing animals from an area where theywere a natural partof the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similarto those of overgrazing in some respects.

5. Water Quality

Affected Environment - Surface Water

The Pecos River flows for approximately 1.2 miles through the east side of the allotment. Allotment 64059 is on the river reach between the Rio Pehasco and Salt Creek, which is identified as Segment2206 bythe New Mexico Water Quality Control Commission (WQCC). Under the authority of the federal Clean Water Act, the WQCC (1995) designated uses for streams in New Mexico. Designated uses for Segment 2206 include irrigation, livestock watering, wildlife habitat, secondary contact (e.g., wading), and a warmwater fishery.

The WQCC (1995) also established water quality standards to protectthe designated uses, and directs periodic water quality assessments to ensure that standards are met. According to the New Mexico Environment Department (NMED), Segment 2206 is currently meeting the standards for all its designated uses (Hogge 1998, NMED 1998a, WQCC 1998).

The old Rio Hondo channel meanders along the southwest boundary of the allotment and provides water for livestock. A network of low-gradient, ephemeral channels also drain a wetland in the northern partof theallotmentand BLNWRwhen waterlevelsare high enough, though this water is too saline for livestock use.

Mr. Lynch and the BLM have incorporated best management practices (BMPs)[4] into the operation of the ranch. These BMPs include:

Grazing Permit Authorization System - includingthe preparation of this environmental assessment.
Rangeland Monitoring - assessing the allotment for vegetation production, composition and ground cover.
Controlling Livestock Numbers - overall numbers are not set bythe BLM, but Mr. Lynch adjusts his stocking rate to suit the range condition.
Controlling Seasons of Use - particularly in the riparian pasture, which will receive limited use.
Controlling Livestock Distribution -fencing allows livestock to be rotated through the eight pastures on the ranch.
Vegetation Treatments - efforts to control brush enhances ground cover.

Environmental Impacts - Surface Water

In general, livestock grazing is considered a potential cause of nonpoint source pollution, with sediment as the primary contaminant. Livestock grazing on the allotment, however, is not expected to be a significant cause of sediment loading to the Pecos River under either management alternative. The BMPs that have been implemented have greatly reduced the potential forwater quality impairment. Also, the NMED conducted an intensive assessment of Pecos River water quality in 1997. They concluded that no water quality standards have been exceeded in the past ten years on Segment 2206 (NMED 1998a).

[4] Best management practices (BMPs) are activities, practices, or procedures designed to prevent or reduce water pollution. BMPs include, but are not limited to structural or nonstructural controls, changes in management practices, and operation and maintenance procedures. BMPs can be applied before, during, or after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.

The NMED also considered siltation and stream bottom deposits in evaluating impactstothe threatened Pecos bluntnose shiner and its habitat. The NMED cites a letterfrom the U.S. Fish and Wildlife Service (USFWS) that sediment conditions alone are not significant contributing factors in the ability of the bluntnose shiner to survive and reproduce. Instead, upriver reservoirs have trapped sediment and resulted in water exiting the reservoirs that is "starved of sediment." Therefore, sediment loading due to livestock grazing on the allotmentwould not be expected to significantly affect Pecos River water quality under either alternative.

Bacteria and nutrients are other potential contaminants that can be related to livestock grazing. A review of historic water-quality data did not show any evidence of bacteria contamination of the river, butelevated levels of ammoniawere noted during sampling in 1986 (NMED 1998a). The level was still below the chronic standard for ammonia established by the state. The Roswell wastewater treatment plantwas discharging during sampling, and is believed to have been the principal contributor to the elevated levels of ammonia. BLNWR was also mentioned by the NMED as a possible contributor. Because no water quality standards have been exceeded in more than ten years, livestock grazing on the allotment does not appear to have a significant impact on Pecos River water quality.

Cumulative impacts to Pecos Riverwater qualityfrom grazing on Allotment 64059 would not be expected to be significant. The intensive assessment of the Pecos River by the NMED also included Segment 2207 (Sumner Dam to Salt Creek) immediately upstream of Segment 2206. Besides rangelands, potential sources of pollutants in Segments 2206 and 2207 include irrigation return flows, dairies, municipal and industrial sources, mineral development, and road construction and maintenance. Even considering all these potential pollution sources, neither segment had a documented exceedance of any water quality standard.

Affected Environment - Ground Water

The allotment lies at the centerof the Roswell Underground Water Basin (New Mexico State Engineer1995). Groundwater is found in the alluvial aquifer at depths greater than 20 feet in the northern part of the allotment, but near the surface in much of the area (Wilkins and Garcia 1995). Yields of 100 gallons per minute or more from the alluvium are common (Geohydrology Associates, Inc. 1978).

The artesian aquifer ranges in thickness from less than 100 to 200 feet near the allotment. The top of the eastward-dipping artesian aquifer is approximately 200 feet below the shallow aquifer on the west side of the allotment, and more than 400 feet below near the river. Both aquifers taper to a wedge a short distance to the east (Welder 1983).

The concentration of chlorides in the ground waterfluctuates annually. Generally, it is lowest in the spring, and highest in the fall following the irrigation season. The allotment is in the area of greatest fluctuation due to saltwater intrusion from the Pecos River. In this area, chloride concentrations can be twice as high in the fall as in the spring. Typically, chloride concentrations are from 2000 to 3000 milligrams per liter in both the shallow and artesian aquifers atthe end of the irrigation season, although a measurement of 7000 milligrams per liter from the artesian aquifer was recorded in the southwest part of the allotment in 1978 (Welder 1983).

Environmental Impacts - Ground Water

Livestock grazing would notbe expectedto have a significant impact on ground-water quality under either management alternative. Livestock would be dispersed overthe allotment, and the soil would filter potential contaminants.
The WQCC has the primary responsibility for ground-water quality management in New Mexico. In their most recent report on water quality in New Mexico, the WQCC (1998) did not find livestock grazing on rangelands to be an important potential source of contamination to ground water.

Wilson (1981) also discussed potential sources of ground-water contamination and the relative vulnerability of aquifers in New Mexico. He identified animal confinement facilities (e.g., dairies, feedlots) as potential sources of contamination elsewhere in New Mexico, including areas in the Pecos valley downstream from the allotment. Wilson did not, however, identify livestock grazing on rangelands as an important potential source of ground-water contamination.

Cumulative impacts to ground-water quality from grazing on Allotment 64059 would be negligible. Grazing impactswould be insignificant when compared to otherpotential sources of contamination, such as saline intrusion and agriculture.

6. Floodplains
Affected Environment
The properties of any stream or river are the result of the interaction of its channel geometry, streamflows, sediment load, channel materials, and valley characteristics (Rosgen 1996). The form and fluvial processes of the Pecos River have been modified bythe construction of dams, which have drastically altered the streamflow and sediment regimes of the river. Flooding is less frequent and less severe than prior to dam construction, and sediment loads have been greatly reduced. As a result, the channel has become moderately entrenched, and exhibits much less lateral migration.

Flow regulation with the dams has also changed the extent, character and condition of the riparian area on the river (Durkin et al. 1994). Seasonal flooding is required for obligate riparian vegetation, and sediment deposition on floodplains is important for riparian succession.

Floodplain function on Allotment 64059 is also heavily influenced by developmenflust beyond its boundaries. The BLNWR occupies approximately ten square miles of the 100-year flood plain just upriver. The refuge has altered the entire river system by channelizing portions of the river, constructing miles of levees to create its impoundments, and manipulating the hydrology of the area to regulate water levels.

In addition, U.S. 380forms the southern boundaryof the allotment. The highway embankment greatly affects the hydraulics of the riverfloodplain on the allotmentduring flood flows, though the bridge crossing is performing well at present (U.S. Army Corps of Engineers 1999).

In addition to the Pecos River, flooding of thewestern partof the allotment is influenced bythe Rio Hondo. Flooding of the Hondo is largely controlled by Two Rivers Reservoir approximately 25 miles to the west. The Rio Hondo empties into the Pecos River about two miles downriverfrom Allotment 64059, and the combined 1 00-year flood plain is approximately two miles wide in this area.

For administrative purposes, the 100-year floodplain provides the basis for floodplain management on

public lands. It is based on maps prepared by the Federal Emergency Management Agency (1983). Of 1135 total acres on the allotment, 1024 acres is in the 1 00-year floodplain. This includes 387 acres of BLM land and 637 acres of private land.

The most significant floodplain development on the allotment is a system of brine disposal ponds in Section 32. The disposal ponds were used by the old saltwater conversion plant located north of U.S. 380, about one half mile west of the allotment. The plant has been defunct since 1981, butthe ponds are still in place. They cover approximately 100 acres and are enclosed by about two miles of levees. Other flood plain development on the allotment includes about two miles of roads, several miles of fence, and a gas pipeline right-of-way

Environmental Impacts

The primary influences on floodplain function on the allotment would continue to be the reduction in the frequency and magnitudeof peak flows on the river, development on BLNWR, and the U.S. 380 embankment. Whether or not grazing is authorized on Allotment 64059 would have little additional effect.

There would be little change to the level of development on the Pecos floodplain under the Proposed Action. Roads and fences would continue to be used and maintained. Development unrelated to livestock grazing (e.g., natural gas facilities and the brine disposal ponds) would be unaffected.

Underthe No-Grazing Alternative, some roads could be abandoned and fences removed, but any changes to floodplain function would be minor compared to other impacts. Also, new fences might be constructed to prevent livestock from moving onto public rangeland. Vegetation cover and diversity would probably increase somewhat on the rangelands, and localized impacts, such as cow trails, might revegetate over time.

Livestock grazing under either alternative would notadd to cumulative effects tothefloodplain beyond the current level of development. The No-Grazing Alternative might improve floodplain function slightly because vegetation coverwould increase, and some roads and fences might be removed or abandoned. The improvement expected under the No-Grazing Alternative would be insignificant, however, because current livestock impacts are minor compared to all other impacts to the floodplain, and because additional fences might be constructed.

7. Riparian/Wetiand Areas

Affected Environment

Riparian areas are found along 1.2 miles of the Pecos River on the allotment, with 0.4 mile administered by the BLM. Riparian vegetation is described in the Vegetation section of this environmental assessment. The riparian vegetation community is tied to land form within the floodplain and is influenced by flooding intervals. The land form is comprised of exposed and stabi lized river bars, the flood plain, and terraces. There is an abandoned oxbow on the east side of the river, but a levee d i rects any ban k overflow th roug h the hig hway bridge crossi ng (U.S. Army Corps of Engineers 1999).

The riverchannel is moderately entrenched and slightly conflned bythevalley. The channel material is primarily a sand/silt bed, fine gravels, and a small amount of flood debris, and the stream gradient is relatively flat (0.25 percent). Channel banks are fairly stable, but are sloughing or actively being cut in some locations. Bank erosion is most likely due to channelization and entrenchment of the channel rather than disturbance associated with livestock grazing or other land use activities.

Environmental Impacts

Under the Proposed Action, livestock would graze the riparian area along the Pecos River during short periods prior to the growing season. The greatest vegetation impacts would occur at livestock concentration areas, such as crossings, shaded areas, and accessible points along the river. Impacts are expected to be minor due to the short-duration grazing period and the growing season rest provided.

Utilization of grass species, such as alkali sacaton, could be heavy within the flood plain due to annual use of the area during the growing season, but the risk of overgrazing would be minimized by the rotation system used by Mr. Lynch. The wetland area on the north end of the allotment does not receive much livestock use due to the saline water, and the less desirable forage species present.

Underthe No-Grazing Alternative, thecondition of vegetation in the floodplain and riparian areas would improve somewhat. Enhancements in vegetative cover and diversity, however, would continue to be limited by the regulation of riverflows; and channel entrenchment, which promote the growth of saltcedar and other exotic species. Grasses would initially increase following the exclusion of livestock, but plant vigor could decline from lack of vegetation removal, making ground cover species rank. Because livestock grazing would not be permitted underthis alternative, the range program would be less likely to implement range improvement projects, such as brush control and exotic species control.

8. Wildlife

Affected Environment

The allotment provides avarietyof habitat types for terrestrial and aquaticwildlife species. The diversity and abundance of wildlife species in the area is due to the presence of open water, the numerous drainages interconnecting upland habitats to the Pecos floodplain, a mixtureof grassland habitatand mixed desert shrub vegetation, and riparian vegetation found within the floodplain of the river.

Numerous avian species use the Pecos River during spring and fall migration, including nongame migratory birds. The Bitter Lake National Wildlife Refuge (BLNWR) borders the allotment to the north, and serves as a major focal point for migratory birds (e.g., ducks, geese, cranes, and other waterbirds). Common bird species are mourning dove, mockingbird, white-crowned sparrow, black-throated sparrow, blue grosbeak, northern oriole, western meadowlark, Crissal thrasher, western kingbird, northern flicker, common nighthawk, loggerhead shrike, and roadrunner. Raptors include northern harrier, Swainson's hawk, American kestrel, and occasionally golden eagle and ferruginous hawk.

Common mammal species using the area include mule deer, coyote, gray fox, bobcat, striped skunk, porcupine, racoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper

mouse, kangaroo rat, spotted ground squirrel, and woodrat. A variety of herptiles also occur in the area. Species include the yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, homed lizard, whiptail, hognose snake, coachwhip, gopher snake, rattlesnake, and spadefoot toad.

The Pecos River once supported a wide variety of native fish species adapted to the flow regime that existed priorto dam construction, agriculture development, and the introduction of non-native fish species. The greatest impact to fish habitat is the manipulation of water supply to meet irrigation needs. Representative fish species include the red shiner, sand shiner, Arkansas River shiner, Pecos bluntnose shiner, plains minnow, silvery minnow, plains killifish, mosquitofish, speckled chub, river carpsucker and channel catfish.

Environmental Impacts

Under the Proposed Action, livestock grazing would not significantly affect wildlife habitat. Vegetation monitoring indicates current grazing practices are sustainable, and the riparian pasture and rotation system allow Mr. Lynch to manage the allotment effectively. Underthe No-Grazing Alternative, wildlife habitat would improve somewhat. Livestock would no longer compete directly with wildlife forforage, browse, and cover. Improvement would continue to be limited by invasive species (e.g., goldenrod and saltcedar), which affect plant composition. New range improvement projects that could benefit wildlife habitat, such as saltcedar or mesquite control, might not beimplemented becausethese projects are primarilydriven and funded through the range program.

9. Threatened and Endangered Species

The Pecos bluntnose shiner, Pecos gambusia, interior least tern, and Pecos sunflower are federally listed species that occur or have the potential to occur on the allotment. Federally proposed species include the Pecos pupfish. The status and presence of these species in the RFO area are discussed in the following section.

Pecos Bluntnose Shiner (Notropis simus pecosensis) - Federal Threatened

Affected Environment

Historically, the Pecos bluntnose shiner inhabited the Pecos Riverfrorn Santa Rosa to near Carlsbad, New Mexico. Currently, the subspecies is restricted to the river from the Fort Sumnerarea southward locallyto, the vicinityof Artesia, and seasonally in Brantley Reservoir (NMDGF 1988; USFWS 1992). Routine fish community monitoring conducted bythe USFWS in the Pecos River between Sumner Dam and Brantley Reservoir show the fish remains generally abundant, especially in light of cooperative efforts between the Bureau of Reclamation and the USFWS to more closely mimic natural flows in the Pecos River.

There are two designated critical habitat areas on the Pecos Riverwithin the RFO area. The first is a 64-mile reach beginning about ten miles south of Fort Sumner, downstream to a point about twelve miles south of the DeBaca/Chaves county line. The second reach is from Highway 31 east of Hagerman, south to Highway 82 east of Artesia.

The primary threat to the Pecos bluntnose shiner appears to be the manipulation of flows in the Pecos

River to meet irrigation needs, and the subsequent drying of the river channel (Hatch et al. 1985). High flows in late winter-early spring before natural spring runoff appear to displace fish into marginal downstream habitats, including Brantley Reservoir. Cessation of reservoir releases after spring runoff and before the advent of summer rains desiccates long stretches of the Pecos River. Maintenance of water levels within the Pecos River and its tributaries is beyond the management authority of the BLM. In addition to the manipulation of flows is the threat posed by non-native fish. The introduction and establishment of species such as the Arkansas River shiner offers direct competition with the Pecos blu ntnose shiner.

Livestock grazing does not appear to be a threat to the bluntnose shiner based on a review of the literature. Norwas grazing identified in the Pecos Bluntnose Shiner Recovery Plan as having the potential to adversely affect waterquality, and thus the bluntnose shiner (USFWS 1992).

Environmental Impacts

Underthe Proposed Action, livestock grazing impactstothe Pecos bluntnose shiner would benegligible. Under the No-Grazing Alternative, no impacts from livestock grazing would occur. Based on the assessment of Pecos River water quality conducted by the NMED in 1997, it appears that the shiner would not be affected by poorwater quality if a grazing permit were issued.

Section303(d)of thefederal Clean Water Act requires that the State identify those waters for whichexisting required pollution controlsare not stringent enough to meet State water quality control standards. The State must then establish total maximum daily loads (TMDLs) for pollutants of these water-quality-limited stream segments.' The presence of critical habitat forthe threatened Pecos bluntnose shiner raised the Pecos Riverto a priority one on the New Mexico 303(d) ranking system.

Segment 2206 (Pecos River from Rio Pefiasco, to Salt Creek) had been listed for TMDL development because of concerns about stream bottom deposits, dissolved oxygen, total dissolved solids, metals, and un-ionized ammonia. Following a review of historical data and their survey, however, the NMED (1998a) concluded there was no basis for developing TMDLs on Segment 2206. The NMED (1998b) removed the segment of the Pecos River from the 1998-2000 303(d) list.

NMED's decision to remove Segment 2206 from the 303(d) list bears directly on the Biological Opinion rendered by the USFWS on the Roswell Resource Management Plan. The USFWS cited the New Mexico Water Quality Control Commission's 305(b) report in their opinion. The report identified siltation, reduction of riparian vegetation, and streambank destabilization as among the probable causes for the Pecos River in the RFO area not supporting its designated use as a warm water fishery, and identified rangeland agriculture as a probable source of the nonsupport. Just as Segment 2206 was removed from the 303(d), the next 305(b) report will no longer list the segment as water quality-limited (Hogge 1998).

' The TMDL is defined as "the greatest loading or amount of the pollutant that may be introduced into a watercourse or stream reach from all sources without resulting in a violation of water quality standards."

Pecos Garnbusia *(Gambusia nobilis)* - Federal Endangered

Affected Environment

The Pecos gambusia is endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Historically, the species occurred as far north as the Pecos River near Fort Sumner, and south to Fort Stockton, Texas.

Recent records indicate, however, that its native range is restricted to sinkholes and springs and theiroutflows on the west side of the Pecos River in Chaves County. In spite of population declines, the species remains locally common in a fewareas of suitable habitat. The BLNWR and the Salt Creek Wilderness Area contain the key habitat of the species in the RFO area. On the refuge, the gambusia is primarily restricted to springs and sinkholes in the Lake St. Francis Research Natural Area.

Endangerment factors include the loss oralteration of habitat (e.g., periodic dewatering) and introduction of exotic fish species (e.g., mosquitofish). Potential impacts to habitat may also occur from surface disturbing activities at sinkholes or springs and their outflows.

Environmental Impacts

No impacts to the Pecos gambusia would result from livestock grazing. No springs or seeps exist on BLM land within the allotment that would provide year-long habitat forthe gambusia.

Interior Least Tern *(Stema antillarum athalassos)* - Federal Endangered

Affected Environment

The interior least tern nests on shorelines and sandbars of streams, rivers, lakes, and manmade water impoundments. Records of breeding terns in New Mexico are centered around BLNWR where the species has bred regularly since it was first recorded in 1949. BLNWR is considered "essential" tern breeding habitat in the state. Besides BLNWR, the only known nesting habitat in the RFO area is an alkali flat due north of the refuge on public lands. These are small populations with only a few nesting terns.

Sporadic observations of leastterns have been recorded elsewhere inthe Pecos Rivervalley. Thetern mayoccuron publiclands in Chaves County along the river because suitable nesting habitat is found on sites that are sandy and relatively free of vegetation (i.e., alkali flats). Approximately44 potential nesting sites arefound throughoutthe RFO area. Othe rpotential habitat sites are saline, alkaline, or gypsiferous playas that occasionally hold water. However, ephemeral playas do not support fish, the main staple for terns.

Specific surveys for nesting least terns have been conducted in potential habitat along the Pecos River and playas by the New Mexico Natural Heritage Program under a Challenge-Cost-Share agreement with the BLM. No other nesting terns have been found to date.

Environmental Impacts

No impacts to the interior least tern would result from livestock grazing. Recent habitat surveys found no breeding populations in potential nesting habitat that occurs as sand bars within the river channel.

Pecos (Puzzle) Sunflower (Helianthus paradoxus) - Federal Threatened

Affected Environment

The Pecos sunflower is found along alkaline seeps and cienegas of semi-desert grasslands and short-grass plains (4,000-7,500ft.). Plant populations are found both in water and where the water table is near the ground surface.

In the RFO area, the sunflower is found in only a few areas outside of the BLNWR. In 1994, a new population was found growing on the margins of Lea Lake and its outflowat Bottomless Lakes State Park. Lloyd's Draw, east of the Pecos River, has the only known Pecos sunflower population on BLM land. It became evident at this location following a prescribed fire. Potential habitat also occurs on BLM land within the Overflow Wetlands Wildlife Habitat Area.

Potential habitat forthe sunflower occurs on the allotment as low lying areas where the water table is near the ground surface. The low lying areas are not only along the existing river channel, but in old channel courses and oxbows. These areas are now invaded by saltcedar growing in dense stands, which might prevent the viability of the Pecos sunflower. NoPecos sunflower populations have been found on the allotment to date. Endangerment factors include dewatering of riparian or wetland areas where the sunflower is found, and surface disturbing activities, and excessive livestock grazing.

Environmental Impacts

Impacts to the Pecos sunflower due to livestock grazing would be negligible under the ProposedAction. I m pacts would not occur under the No-G razing Alternative. Thedominance of its potential habitat by saltcedar appears to be a major factor controlling the sunflower's abundance and distribution. Populations of the sunflower might become established following saitcedar control in certain areas is seeds are present in the soil.

Pecos Pupfish *(Cyprinodon pecosensis)* - Federal Proposed

Affected Environment

The Pecos pupfish is found in a variety of habitats from saline springs and gypsum sinkholes to desert streams with highly fluctuating conditions. Pecos pupfish populations are most dense in gypsum sinkholes on BLNWR. The species apparently thrives in these saline waters that support few other fish species. It occasionally occupies fresher waters in the Pecos River, but is uncommon in such habitats. In the river, the pupfish is most often found in backwater areas and side pools that lack sunfish orother predators (NMDGF 1988; Sublette et al. 1990; NMIDGF 1997). The pupfish also inhabits the Overflow Wetlands Wildlife Habitat Area adjacent to the Bottomless Lakes State Park.

Endangerment factors include habitat loss caused by groundwater pumping and channel alterations, hybridization and/or replacement bythe sheepshead minnow, and predation by non-native fish species. Potential impacts to habitat may occur from surface disturbing activities at or near springs or seeps. Other activities that severely impact habitat are not within the purview of the BLM, such as transportation and utilization of waterassociated with agricultural irrigation. Livestock grazing may impact springs or seeps but most of these sites have been protected with exclosures.

Environmental Impacts

Under the Proposed Action, livestock grazing impacts to the Pecos pupfish would be negligible. Under the No-Grazing Alternative, no impacts from livestock grazing would occur. Conclusions regarding riverine habitat are based on the same information used forthe Pecos bluntnose shiner. Suitable sinkhole or spring habitat does not exist on the allotment.

10. **Visual Resources Management**

Affected Environment

The allotment is in a Class 11 area for visual resources management. In a Class 11 area, changes in any of the basic elements (form, line, color, ortexture) caused by a management activity should not be evident in the landscape. A contrast may be seen, but should not attract attention.

Environmental Iml2acts

The basic elements of the landscape would not change within the allotment under either management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

11. **Recreation**

Affected Environment

Because the allotment is adjacent to U.S. 380, it is readily accessible to recreationists. A networkof roads provideaccessto publicand private lands within the allotment, although legal public access is limited. The BLM has designated off-highway vehicle use on public lands in the area as limited to existing roads and trails.

The allotment provides habitat for numerous game species including desert mule deer, mourning dove, and scaled quail. Predator and feral pig hunting may occur on the allotment, as well as trapping for predators orfurbearers. Fishing or minnow seining could also take place on the allotment.

General sightseeing, wildlife viewing, and photography are nonconsumptive recreational activities that may occur. Rock collectors find various minerals unique to the area, such as Pecos diamonds.

Trespass on private lands and vandalism associated with recreation use has been an ongoing problem. Off-highway vehicle users, primarily motorcyclists using the river bed, have repeatedly cut fences. Damage to the water gaps (i.e., fences spanning the river), has precluded use of the riparian pasture. Mr. Lynch has also been endangered by recreationists shooting firearms nearby while he has been working on the allotment. Since the U.S. Fish and Wildlife Service has posted signs on refuge property south of the highway, this activity has been reduced.

Environmental Impacts

Under the Proposed Action, no direct negative impacts to recreational activities on public lands would occur. Conflicts would probably continue between recreational pursuits and ranching activities, depending on hunting seasons and livestock use in a given pasture. This is due more to vandalism and disregard for safety by the recreationists than the authorization of livestock grazing. Denying livestock use on BLM land under the No-Grazing Alternative would not reduce this conflict significantly.

12. **Significant Caves and Karst**

Affected Environment

Allotment 64059 is in an area of high potential for the occurrence of caves and karst. No caves or major karst features have been reported forthe allotment, though a comprehensive inventory has not been completed.

Environmental Impacts

Because no caves or major karst features are known to exist on the allotment, impacts to these resources are not expected to be significant under either alternative. It is possible that cave or karst features exist on the allotment, but have not yet been discovered. Ifafeatureis discovered in the future, protective measures could be required to mitigate adverse impacts tothefeature. Fencing to exclude livestock and off-highway vehicles might be prescribed to prevent soil erosion, vegetation trampling, and livestock effluent from reaching the cave. A separate environmental analysis would be prepared prior to fence construction.

13. **Air Quality**

Affected Environment

Theallotmentis ina Class 11 areaforthe Prevention of Significant Deterioration of airquality as defined by the federal Clean Air Act. Class 11 areas allow a moderate amount of air quality degradation.

Air quality in the region is generally good, with winds averaging 10 to16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

Environmental Impacts

Dust levels resulting from allotment management activities would be slightly higher underthe Proposed Action than the No-Grazing Alternative. The cumulative impact on air quality from the allotment would be negligible compared to all pollution sources in the region.

IV. CUMULATIVE IMPACTS

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

The analysis of cumulative impacts is driven by major resource issues. The action considered in this environmental assessment (EA) is the authorization of livestock grazing on Allotment 64059, and the major issues include:

(1) threatened and endangered species associated with the Pecos River, primarily the Pecos

bluntnose shiner,

(2) Pecos River water quality, and

(3) riparian/wetland habitat within the Pecos River floodplain.

The incremental impact of issuing a grazing permit on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments along the Pecos River; oil and gas activities on the river floodplain and on the uplands; rights-of-way crossing the river; and recreation use, particularly off-highway vehicles.

All authorized activities which occur on BLM land can also take place on state and private lands. In addition, significant impacts could result from reservoir management and the manipulation of river flows, the alteration of the natural river system by Bitter Lake National Wildlife Refuge, and agricultural activities (e.g. dairies, crop production, and irrigation diversions and return flows).

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Sumner Dam, the principal structure controlling river flows in this reach, was built in 1937. It was about this time that Bitter Lake National Wildlife Refuge was developed, which altered the hydrology of the river dramatically. Major irrigation projects were begun in the 19th century, and oil and gas activities began in the early part of the 20th century. All these activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

The Proposed Action would not add incrementally to the cumulative impacts to threatened and endangered species, Pecos Riverwater quality, or riparian/wetland habitat within the Pecos River flood plain. The conclusion that impacts to these resources from grazing authorization would not be significant are discussed in detail in Section III of the EA.

V. MITIGATION MEASURES

Mitigation measures are actions which could be taken to avoid or reduce impacts likely to result from the Proposed Action or the No-Grazing Alternative. The following mitigation measures address possible impacts from livestock grazing under the Proposed Action.

Vegetation monitoring studies and riparian assessments would continue if a new grazing permit were issued. Changes to livestock management would be made if monitoring data show that adverse impacts to upland or riparian vegetation are occurring.

It is possible that unforeseen impacts to other resources could occur during the term of the permit. If adverse environmental impacts are observed, action would be taken to mitigate those impacts at that time.

VI. RESIDUAL IMPACTS

Residual impacts are direct, indirect, orcumulative impacts thatwould remain afterapplying the

mitigation measures. Residual impacts following authorization of livestock grazing would be insignificant if the mitigation measures are properly applied.

VII. FUNDAMENTALS OF RANGELAND HEALTH

Throughthe Rangeland Reform'94 initiative, the BI-Mdeveloped new regulations for grazing administration on public lands. With public involvement, fundamentals of rangeland health were established and written into the new regulations. The fundamentals of rangeland health are identified in 43 CFR §4180.1, and pertain to (1) watershed function; (2) ecological processes; (3) water quality; and (4) habitat for threatened, endangered, and otherspecial statusspecies. Based on available data and professional judgement, the evaluation by this environmental assessment indicates that conditions identified in the fundamentals of
rangeland health exist on Allotment 64059.

VIII. BLM INTERDISCIPLINARY TEAM

Dan Baggao	PaulHappel
	Irene Salas
Jerry Dutchover	Tim Kreager
	Jim Schroeder
Pat Flanary	Howard Parman
	Clark Taylor

IX. PERSONS OR AGENCIES CONSULTED

Chaves County Public Land Use Advisory Committee
Mr. Clint Lynch - Permittee
Forest Guardians
New Mexico Department of Game and Fish
New Mexico Energy, Minerals, and Natural Resources Department
- Forestry and Resource Conservation Division
New Mexico Environment Department - Surface Water Quality Bureau
New Mexico State Land Office
U.S. Fish and Wildlife Service - Ecological Services
U.S. Fish and Wildlife Service - Fishery Resources Office

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